

CHRISTIAN SOCIAL SERVICES COMMISSION (CSSC)
NORTHERN ZONE JOINT EXAMINATIONS SYNDICATE (NZ-JES)



FORM FOUR PRE- NATIONAL EXAMINATIONS AUGUST 2024
BIOLOGY 1
MARKING SCHEME

1. Multiple choices

i.	ii.	iii.	iv.	v.	vi.	vii.	viii.	ix	x
B	C	A	D	B	A	C	B	C	D

01@=10 Marks

2. Matching item

I	ii	iii.	iv.	v.	vi.
D	E	A	F	H	B

01@=06 Marks

SECTION B

3. First aid kit is a small box which contain tool for providing first aid

01 Marks

- (b) ✓ Pain killer to relieve pain
✓ Scissor cutting dressing material such as bandage
✓ Cotton wool for cleaning he wound
✓ Liniment for reducing muscle pain
✓ Iodine tincture or sprit for cleaning wound and prevent infection
✓ Soap for washing hands

Any four points **02@=08 Marks**

4. (a) – **Sensory neuron** transmit impulses from receptor organ to the CNS
- **Relay neurone** links sensory and motor neurone within the CNS.
- **Motor neurone** transmit impulses from the CNS to the effector organ.

01@=03 Marks

(b)

i. The component labeled P- receptor Q- coordinator (CNS) R –Effector

01@=03 Marks

ii. Muscles, glands ,cilia and flagella

Any two points **01½@=03 Marks**

5. (a) i) Nutrition disorder the child is suffering from is KWASHIORKOR **01 Marks**

ii) To provide food rich in protein like fish, meat, eggs, mushroom **02 Marks**

(b) i. Mbawala's body mass index

$BMI = \frac{BODY MASS}{PERSON HEIGHT (m^2)}$

BMI= 70 kg/150cm

70Kg/ (1.5x1.5)m²

$70Kg/2.25m^2 = 31.11Kg/m^2$

So Mbawala BMI is 31.11 kg/m²

02 Marks

ii. He is facing obesity **01 Marks**

iii. - He should eat properly

- He should engage in regular exercise

-He should avoid eating much fatty foods such as butter, fatty and chips and sugary foods **01@=03 Marks**

6. (a)

i. Aestivation is the state of dormancy during hot days where animal reduce body metabolic activities

01½ Marks

ii. Hibernation is the state where animal greatly reduce its metabolic activities and slows the heart rate for the purpose of conserving energy

01½ Marks

(b) (i) Homiothermic/Endotherms – For the rat

Poikilothernic/Ectotherms – For the frog

01@=02 Marks

(ii) Increased metabolic rate

Shivering

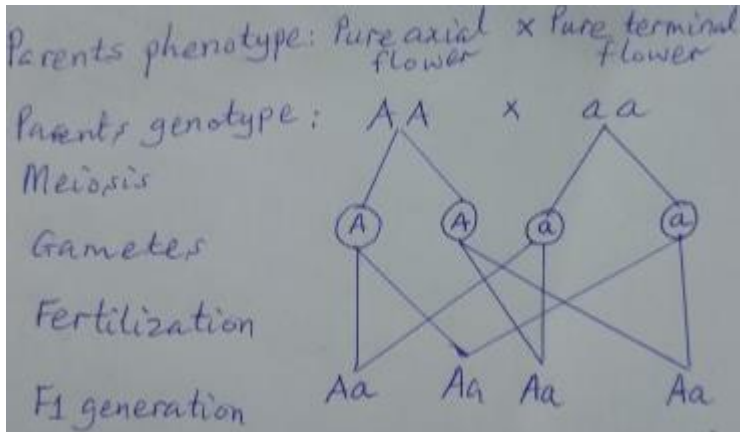
Vasoconstriction

Any two points **02@=04 Marks**

7. (a) Axial flower were dominant over terminal flower
Reason: Because after crossing all F1 generation were axial flower
01 Marks

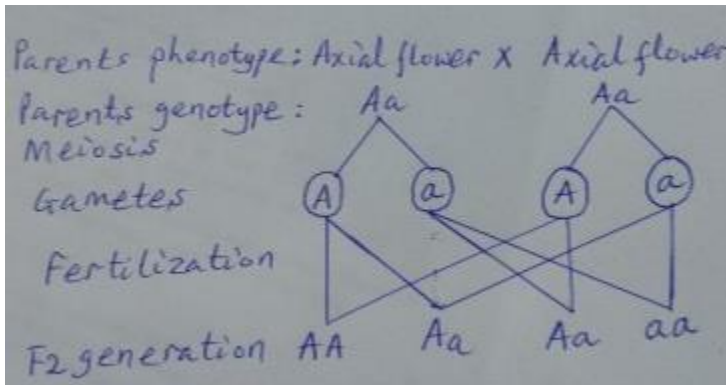
- (b) Let allele for axial flower be A
Let allele for terminal flower be a
01 Marks

Let the parental genotype for pure axial flower be AA
Let the parental genotype for pure terminal flower be aa



00½@= 03 Marks

- (c) When selfing F1 generation.



00½@=03 Marks

- (d) The number of homozygous Axial flowers in F2 generation.

$$\text{Total flowers } 312 + 104 = 416$$

$$\frac{1}{4} \times 416 = 104$$

Therefore, the number of homozygous Axial flowers = 104 **01 Marks**

8. (a) Epigeal germination is the type of germination in which cotyledons of a seed are pushed above the ground

While

Hypogeal germination is the type of seed germination in which cotyledons remain below the soil surfaces

01 Marks

(b) Condition for seed germination

- Water
- Oxygen gas
- Temperature
- Enzyme and hormone

02@=08 Marks

SECTION C (30 marks)

Each question in this section consist of 15 marks (Answer only 2 question)

9. Introduction about organic evolution is a slow gradual, continuous and irreversible change through which existing complex forms descend from their simple pre-existing forms

Evidence of organic evolution

- Evidence of fossil records
- Evidence of comparative embryology
- Comparative anatomy
- Evidence of biogeography
- Comparative physiology
- Cell biology
- Genetic variation

Introduction = 02½ Marks

Main body 02@=10 Marks

Conclusion 02½ Marks

10. Advantages of bacteria

- Used in genetic engineering
- Used as a source of oxygen in the atmosphere
- Used in production of antibiotics
- Used as decomposers hence add soil fertility
- Used in digestion in ruminant animals
- Used in fermentation process
- Nitrogen fixing bacteria are used to convert atmospheric nitrogen into soil nitrates
- Production of vitamin K and B 12

Introduction = 01½ Marks

Main body = 02@= 12 Marks

Conclusion = 01½ Marks

11. Risky situations and behaviours that may lead to STIDs and HIV

Risky behaviors are those behaviors that puts someone in a danger of getting infected with stds and HIV

- Having many sexual partners
- Transfusion of unscreened blood
- Sharing person items like towels, toothbrush, and swimsuits
- Sharing sharp objects
- Use unsterilized instrument
- Drug abuse and use of alcohol
- Staying in secluded places with member of the opposite sex
- Rape
- Prostitution
- Poligamy
- Widow inheritance
- Forced marriage
- Homosexuality

Introduction = 01½ Marks

Main body = 02@ = 12 Marks

Conclusion = 01½ Marks